103D CONGRESS
1ST SESSION

S. 4

To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 21 (legislative day, JANUARY 5), 1993

Mr. HOLLINGS (for himself, Mr. MITCHELL, Mr. ROCKEFELLER, Mr. BINGAMAN, Mr. LIEBERMAN, Mr. RIEGLE, Mr. ROBB, Mr. WOFFORD, Mr. KERRY, Ms. MOSELEY-BRAUN, and Mr. LEAHY) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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A BILL

To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—GENERAL PROVISIONS

SEC. 101. SHORT TITLE AND TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''National Competitiveness Act of 1993''.

(b) TABLE OF CONTENTS.—

SEC. 102. FINDINGS.

Congress finds and declares the following:

(1) In an increasingly competitive world economy, the companies and nations which lead in the rapid development, commercialization, and application of new technologies, and in the low-priced, high-quality manufacture of products based on those technologies, will lead in economic growth, employment, and high living standards.

(2) While the United States remains the world leader in science and invention, it has not done as

well as it should in commercializing and manufacturing new inventions. This lag and the unprecedented competitive challenge that the Nation has faced from abroad have contributed to a drop in real wages and living standards.

(3) While the private sector must take the lead in the development, application, and manufacture of new technologies, the Federal Government should—

(A) assist industry in the development of high-risk, long-term precommercial technologies which promise large economic benefits for the Nation;

(B) support industry-led efforts to develop and refine advanced manufacturing technologies;

(C) work with States, the private sector, and worker organizations to help small- and medium-sized manufacturers throughout the Nation to adopt best current manufacturing technologies and practices, to improve worker skills, and prepare, as appropriate, to adopt the advanced computer-controlled manufacturing technologies of the 21st century; and

(D) cooperate with industry and academia to help create an advanced information infrastructure for the United States.

(4) In working with industry to promote the technological leadership and economic growth of the United States, the Federal Government also has a responsibility to consult with business leaders on industry's long-term technological needs, to monitor technological trends and technology targeting efforts in other nations, and generally to ensure that Federal technology programs help United States to remain competitive and create good domestic jobs.

(5) The Department of Commerce, and particularly its Technology Administration and National Institute of Standards and Technology, is and should remain the civilian government agency which helps commercial industry to speed the development and commercialization of new technologies, improve manufacturing, and ensure a growing and healthy national industrial base and good manufacturing jobs. To promote the long-term economic growth of the Nation, these Department of Commerce programs should be strengthened and expanded.

SEC. 103. PURPOSES.

The purposes of this Act are to—

(1) strengthen and expand the ability of Federal technology programs, particularly those of the Department of Commerce, to support industry-led efforts to improve the technological capabilities, manufacturing performance, information infrastructure, and employment opportunities of the United States;

(2) promote and facilitate, particularly through the Advanced Technology Program of the Department of Commerce the creation, development, and adoption of technologies that will contribute significantly to United States economic competitiveness, employment, and prosperity;

(3) develop a nationwide network of sources of technological advice for manufacturers, particularly small- and medium-sized firms, and to provide high quality, current information to that network;

(4) encourage the development and rapid application of advanced manufacturing technologies and processes;

(5) create pilot programs to stimulate and supplement the flow of capital to business concerns engaged principally in development or utilization of critical civilian and other advanced technologies;

(6) ensure the widest possible application of high-performance computing and high-speed networking and to aid United States industry to develop an advanced national information infrastructure; and

(7) enhance and expand the core programs of the National Institute of Standards and Technology.

SEC. 104. DEFINITIONS.

For purposes of this Act—

(1) the term ''advanced manufacturing technology'' includes—

(A) numerically-controlled machine tools, robots, automated process control equipment, computerized flexible manufacturing systems, associated computer software, and other technology for improving manufacturing and industrial production which advance the state-of-the-art; and

(B) novel techniques and processes designed to improve manufacturing quality, productivity, and practice, and to promote sustainable development, including engineering design, quality assurance, concurrent engineering, continuous process production technology, energy efficiency, waste minimization, design for

recyclability or parts reuse, inventory management, upgraded worker skills, and communications with customers and suppliers;

(2) the term ''Director'' means the Director of the Institute;

(3) the term ''Institute'' means the National Institute of Standards and Technology;

(4) the term ''modern technology'' means the best available proven technology, techniques, and processes appropriate to enhancing the productivity of manufacturers;

(5) the term ''Secretary'' means the Secretary of Commerce; and

(6) the term ''Under Secretary'' means the Under Secretary of Commerce for Technology.

TITLE II—MANUFACTURING

SEC. 201. SHORT TITLE.

This title may be cited as the ''Manufacturing Technology and Extension Act of 1993''.

Subtitle A—Manufacturing Technology and Extension

SEC. 211. FINDINGS AND PURPOSE.

(a) FINDINGS.—Congress finds and declares the following:

(1) United States manufacturers, especially small businesses, require the adoption and implementation of both modern (that, appropriate and currently available) technologies and advanced manufacturing and process technologies to meet the challenge of foreign competition.

(2) The development and deployment of modern and advanced manufacturing technologies are vital to the economic growth, environmental sustainability, standard of living, competitiveness in world markets, and national security of the United States.

(3) New developments in flexible, computer-integrated manufacturing, electronic manufacturing communications networks, and other new technologies make possible dramatic improvements across all industrial sectors in productivity, quality, and the speed with which manufacturers can respond to changing market opportunities.

(4) The Department of Commerce's Technology Administration can continue to play an important role in assisting United States industry to develop, test, and deploy modern and advanced manufacturing technologies.

(b) PURPOSE.—It is the purpose of this subtitle to help ensure the continued leadership of the United States

in manufacturing by enhancing the Department of Commerce's technology programs to—

(1) provide domestic manufacturers, especially small- and medium-sized companies, with ready access to high quality Federal advice and assistance in the development, deployment, and improvement of modern manufacturing technology, and in solving their specific technology-based problems; and

(2) encourage, facilitate, and promote the development and adoption of advanced manufacturing technologies by the private sector.

SEC. 212. MANUFACTURING TECHNOLOGY AND EXTENSION AMENDMENTS TO THE STEVENSON-WYDLER ACT.

The Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.) is amended by adding at the end the following new title:

"TITLE III—MANUFACTURING TECHNOLOGY

"SEC. 301. STATEMENT OF POLICY.

''Congress declares that it is the policy of the United States that—

''(1) Federal agencies, particularly the Department of Commerce, shall work with industry and labor to ensure that within 10 years of the date of

enactment of this Act the United States is second to no other nation in the development, deployment, and use of advanced manufacturing technology;

''(2) all the major Federal research and development agencies shall place a high priority on the development and deployment of advanced manufacturing technologies, and shall work closely with United States industry and with the Nation's universities to develop and test those technologies; and

''(3) other Federal departments and agencies which work with civilian industry and labor shall be encouraged, as appropriate and consistent with applicable statutes and duties, to work with and through the programs of the Department of Commerce.

"**SEC. 302. ROLE OF THE DEPARTMENT OF COMMERCE.**

''(a) IN GENERAL.—The Department of Commerce shall, consistent with the policies and purposes of section 301, work with United States commercial industry and labor to—

''(1) help develop new generic advanced manufacturing technologies, including advanced flexible computer-integrated manufacturing systems and electronic communications networks; and

''(2) assist the States and the private sector to help United States manufacturers, especially small and medium-sized manufacturing enterprises, to adopt best current manufacturing technologies and practices and, as appropriate, new advanced manufacturing equipment and techniques.

''(b) TWENTY-FIRST CENTURY MANUFACTURING INFRASTRUCTURE PROGRAM.—(1) As one important step to carry out the responsibilities of the Department of Commerce under subsection (a) of this section, there is established within the Institute a Twenty-First Century Manufacturing Infrastructure Program, which shall include—

''(A) the Advanced Manufacturing Technology Development Program established under section 303 of this title; and

''(B) the National Manufacturing Outreach Program established under section 304 of this title and the associated programs established under sections 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k–l).

''(2) The Secretary, through the Under Secretary and the Director, may accept the transfer of funds from any other Federal agency and may use those funds to implement the Twenty-First Century Manufacturing Infrastructure Program and support its activities.

''SEC. 303. ADVANCED MANUFACTURING TECHNOLOGY DEVELOPMENT PROGRAM.

''(a) PROGRAM DIRECTION.—The Secretary, through the Under Secretary and the Director, shall establish an Advanced Manufacturing Technology Development Program which shall include advanced manufacturing systems and networking projects.

''(b) PROGRAM GOAL.—The goal of the Advanced Manufacturing Technology Development Program is to create collaborative multiyear technology development programs involving United States industry and, as appropriate, other Federal agencies, the States, worker organizations, universities, and other interested persons, in order to develop, refine, test, and transfer design and manufacturing technologies and associated applications, including advanced computer integration and electronic networks.

''(c) PROGRAM COMPONENTS.—The Advanced Manufacturing Technology Development Program shall include—

''(1) the advanced manufacturing research and development activities at the Institute; and

''(2) one or more technology development testbeds within the United States, selected in accordance with procedures, including cost sharing, established for the Advanced Technology Program under section 28 of the National Institute of Stand-

ards and Technology Act (15 U.S.C. 278n), whose purpose shall be to develop, refine, test, and transfer advanced manufacturing and networking technologies and associated applications through a direct manufacturing process.

''(d) ACTIVITIES.—The Advanced Manufacturing Technology Development Program, under the coordination of the Secretary, through the Director, shall—

''(1) test and, as appropriate, develop the equipment, computer software, and systems integration necessary for the successful operation within the United States of advanced design and manufacturing systems and associated electronic networks;

''(2) establish at the Institute and the technology development testbed or testbeds—

''(A) prototype advanced computer-integrated manufacturing systems; and

''(B) prototype electronic networks linking manufacturing systems;

''(3) assist industry to develop, and implement voluntary consensus standards relevant to advanced computer-integrated manufacturing operations, including standards for networks, electronic data interchange, and digital product data specifications;

''(4) help to make high-performance computing and networking technologies an integral part of design and production processes where appropriate;

''(5) conduct research to identify and overcome technical barriers to the successful and cost-effective operation of advanced manufacturing systems and networks;

''(6) facilitate industry efforts to develop and test new applications for manufacturing systems and networks;

''(7) involve in the Advanced Manufacturing Technology Development Program, to the maximum extent practicable, both those United States companies which make manufacturing and computer equipment and a broad range of company personnel from those companies which buy the equipment;

''(8) identify training needs, as appropriate, for company managers, engineers, and employees in the operation and applications of advanced manufacturing technologies and networks, with a particular emphasis on training for production workers in the effective use of new technologies;

''(9) work with private industry, universities, and other interested parties to develop standards for the use of advanced computer-based training sys-

tems, including multi-media and interactive learning technologies;

''(10) involve small- and medium-sized manufacturers in its activities; and

''(11) exchange information and personnel, as appropriate, between the technology development testbeds and the electronic network created under section 303.

''(e) TESTBED AWARDS.—(1) In selecting applicants to receive awards under subsection (c)(2) of this section, the Secretary shall give particular consideration to applicants that have existing computer expertise in the management of business, product, and process information such as digital data product and process technologies and customer-supplier information systems, and the ability to diffuse such expertise into industry, and that, in the case of joint research and development ventures, include both suppliers and users of advanced manufacturing equipment.

''(2) An industry-led joint research and development venture applying for an award under subsection (c)(2) of this section may include one or more State research organizations, universities, independent research organizations or Regional Centers for the Transfer of Manufacturing Technology (as created under section 25 of the National

Institute of Standards and Technology Act) and other organizations as the Secretary considers appropriate.

''(f) ADVICE AND ASSISTANCE.—(1) Within 6 months after the date of enactment of this title, and before any request for proposals is issued, the Secretary shall hold one or more workshops to solicit advice from United States industry and from other Federal agencies, particularly the Department of Defense, regarding the specific missions and activities of the testbeds.

''(2) The Secretary shall, to the greatest extent possible, coordinate activities under this section with activities of other Federal agencies and initiatives relating to Computer-Aided Acquisition and Logistics Support, electronic data interchange, flexible computer-integrated manufacturing, and enterprise integration..

''(3) The Secretary may request and accept funds, facilities, equipment, or personnel from other Federal agencies in order to carry out responsibilities under this section.

''(g) APPLICATION OF ANTITRUST LAWS.—Nothing in this section shall be construed to create any immunity to any civil or criminal action under any Federal or State antitrust law, or to alter or restrict in any matter the applicability of any Federal or State antitrust law.

"SEC. 304. NATIONAL MANUFACTURING OUTREACH PROGRAM.

''(a) ESTABLISHMENT AND PURPOSE.—There is hereby established a National Manufacturing Outreach Program (hereafter in this section referred to as the 'Outreach Program'). The Secretary, acting through the Under Secretary and the Director, shall implement and coordinate the Outreach Program in accordance with an initial plan to be prepared and submitted to Congress within 6 months after the date of enactment of this title and a 5-year plan for the Outreach Program to be submitted to the Congress within a year after the date of enactment of this title and to be updated annually. The purpose of the Outreach Program is to link and strengthen the Nation's manufacturing extension centers and activities in order to assist United States manufacturers, especially small and medium-sized firms, to expand and accelerate the use of modern manufacturing practices, and to accelerate the development and use of advanced manufacturing technology.

''(b) COMPONENTS.—The Outreach Program shall be a partnership of the Department of Commerce, the States, the private sector, and, as appropriate, other Federal agencies to provide a national system of manufacturing extension centers and technical services to United States companies, particularly small and medium-sized manufac-

turers. The Outreach Program shall include the following components—

''(1) Manufacturing Outreach Centers, as provided for under subsection (c) of this section;

''(2) Regional Centers for the Transfer of Manufacturing Technology, as established under section 25 of the National Institute of Standards and Technology Act, and the State Technology Extension Program, as established under section 26 of the National Institute of Standards and Technology Act;

''(3) an organization, coordinated and funded by the Institute, which links and supports Manufacturing Outreach Centers and Regional Centers for the Transfer of Manufacturing Technology, and which operates the Technology Extension Network and Clearinghouse established under subsection (d) of this section; and

''(4) such technology and manufacturing extension centers supported by other Federal departments and agencies as the Secretary may deem appropriate for inclusion in the Outreach Network.

''(c) MANUFACTURING OUTREACH CENTERS.—(1) Government and private sector organizations, actively engaged in technology or manufacturing extension activities, may apply to the Secretary to be designated as Manufac-

turing Outreach Centers. Eligible organizations may include Federal, State, and local government agencies, their extension programs, and their laboratories; small business development centers; and appropriate programs run by professional societies, worker organizations, industrial organizations, for-profit or nonprofit organizations, universities, community colleges, and technical schools and colleges, including, where appropriate, vendor-supported demonstrations of production applications.

''(2) The Secretary shall establish terms and conditions of participation and may provide financial assistance, on a cost-shared basis and through competitive, merit-based review processes, to nonprofit or government participants throughout the United States to enable them to—

''(A) join the Outreach Program and disseminate its technical and information services to United States manufacturing firms, particularly small and medium-sized firms; and

''(B) strengthen their efforts to help small and medium-sized United States manufacturers to expand and accelerate the use of modern and advanced manufacturing practices.

''(3) Each Manufacturing Outreach Center shall have the option of affiliating or not affiliating with one or more

Regional Centers for the Transfer of Manufacturing Technology. If such a Manufacturing Outreach Center chooses to make such an affiliation, the Secretary, through the Director, shall take such steps as appropriate to ensure a productive working partnership between such center and the Regional Center or Centers with which it affiliates.

''(d) TECHNOLOGY EXTENSION COMMUNICATIONS NETWORK.—The Department of Commerce shall provide for an instantaneous, interactive communications network to serve the Outreach Program, to facilitate interaction among Manufacturing Outreach Centers, Regional Centers for the Transfer of Manufacturing Technology, and Federal agencies and to permit the collection and dissemination in electronic form, in a timely and accurate manner, of information described in subsection (e). Such communications infrastructure shall, wherever practicable, make use of existing computer networks, data bases, and electronic bulletin boards. Communications infrastructure arrangements, including user fees and appropriate electronic access for public and private information suppliers and users shall be addressed in the 5-year plan prepared under subsection (a) of this section.

''(e) CLEARINGHOUSE.—(1) The Secretary shall develop a clearinghouse system, using the National Institute of Standards and Technology, the National Technical In-

formation Service, and private sector information providers and carriers where appropriate, to—

''(A) identify expertise and acquire information, appropriate to the purpose of the Outreach Program stated in subsection (a), from all available Federal sources, and where appropriate from other sources, providing assistance where necessary in making such information electronically available and compatible with the electronic network;

''(B) ensure ready access by United States manufacturers and other interested private sector parties to the most recent relevant available such information and expertise; and

''(C) to the extent practicable, inform such manufacturers of the availability of such information.

''(2) The clearinghouse shall include information available electronically on—

''(A) activities of Manufacturing Outreach Centers, Regional Centers for the Transfer of Manufacturing Technology, the State Technology Extension Program, and the users of the electronic network;

''(B) domestic and international standards from the Institute and private sector organizations and

other export promotion information, including conformity assessment requirements and procedures;

''(C) the Malcolm Baldrige Quality program, and quality principles and standards;

''(D) manufacturing processes minimizing waste and negative environmental impact;

''(E) federally-funded technology development and transfer programs;

''(F) responsibilities assigned to the Clearinghouse for State and Local Initiatives on Productivity, Technology, and Innovation under section 102 of this Act;

''(G) how to access data bases and services; and

''(H) other subjects relevant to the ability of companies to manufacture and sell competitive products throughout the world.

''(f) PRINCIPLES.—In carrying out this section, the Department of Commerce shall take into consideration the following principles:

''(1) The Outreach Program and the electronic network shall be established and operated through cooperation and co-funding among Federal, State, and local governments, other public and private contributors, and end users.

''(2) The Outreach Program and the electronic network shall utilize and leverage, to the extent practicable, existing organizations, data bases, electronic networks, facilities, and capabilities, and shall be designed to complement rather than supplant State and local programs.

''(3) The Outreach Program should, to the extent practicable, involve key stakeholders at all levels in the planning and governance of modernization strategies; concentrate on assisting local clusters of firms; promote collaborative learning and cooperative action among small and large manufacturers; link industrial modernization programs tightly to existing and future Federal training initiatives, including those for youth apprenticeship programs; encourage small firms to seek modernization services by working with major manufacturers to strengthen and coordinate their supplier assessment, certification, and development programs; identify and honor best practices by firms and the programs that support them; provide funding based on performance and ensure rigorous evaluation of extension services; as appropriate, coordinate Federal programs that support manufacturing modernization; and work with Federal, State, and private organizations so that Out-

reach Centers and Regional Centers for the Transfer of Manufacturing Technology can provide referrals to other important business services, such as assistance with financing, training, and exporting.

''(4) The Outreach Program and the electronic network and communications infrastructure provided for under subsection (d), shall be subject to all applicable provisions of law for the protection of trade secrets and business confidential information.

''(5) Local or regional needs should determine the management structure and staffing of the Manufacturing Outreach Centers. The Outreach Program shall strive for geographical balance with the ultimate goal of access for all United States manufacturers.

''(6) Manufacturing Outreach Centers should have the capability to deliver outreach services directly to manufacturers; actively work with, rather than supplant, the private sector; and to the extent practicable, maximize the exposure of manufacturers to demonstrations of modern technologies in use.

''(7) Manufacturing Outreach Centers shall focus, where possible, on the development and deployment of flexible manufacturing practices applicable to both defense and commercial applications.

''(8) The Department of Commerce shall develop mechanisms for—

''(A) soliciting the perspectives of manufacturers using the services of the Manufacturing Outreach Centers and Regional Centers for the Transfer of Manufacturing Technology; and

''(B) evaluating the effectiveness of the Manufacturing Outreach Centers.

"SEC. 305. INDUSTRY-LED MANUFACTURING ADVISORY COMMITTEE.

''(a) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy, after consultation with the Secretary of Commerce and other appropriate Federal officials, shall establish within that office a Manufacturing Advisory Committee (hereafter in this section referred to as the 'Committee'), led by industry officials, to provide advice and, as appropriate, guidance to Federal manufacturing programs.

''(b) FUNCTIONS.—The Committee shall—

''(1) collect and analyze information on the range of factors which determine the success of United States-based manufacturing industries, and particularly factors regarding the development and deployment of advanced manufacturing technologies and the application of best manufacturing practices;

''(2) identify areas where appropriate cooperation between the Federal Government and the private sector, including Government support for industry-led joint research and development ventures and for manufacturing extension activities, would enhance United States industrial competitiveness, and provide advice and guidance for such cooperative efforts;

''(3) provide guidance on what Federal policies and practices are necessary to strengthen United States-based manufacturing, particularly Federal policies and practices regarding research budgets, interagency coordination and initiatives, technology transfer, regulation, and procurement; and

''(4) generally develop recommendations for guiding Federal agency and interagency activities related to United States-based manufacturing.

''(c) MEMBERSHIP AND PROCEDURES.—(1)(A) The Committee shall be composed of 13 members, 7 of whom shall constitute a quorum.

''(B) The Director of the Office of Science and Technology Policy, the Secretary, the Secretary of Defense, and the Director of the National Science Foundation, or their designees, shall serve as members of the Committee.

''(C) The President, acting through the Director of the Office of Science and Technology Policy, shall within 120 days of the date of enactment of this Act appoint 9 additional members from the private manufacturing industry, worker organizations, State technology agencies, and academia. At least 1 such member shall be from small business.

''(2) The Director of the Office of Science and Technology Policy or the Director's designee shall chair the Board.

''(3) The chairman shall call the first meeting of the Board within 30 days after the appointment of members is completed.

''(4) The Board may use such personnel detailed from Federal agencies as may be necessary to enable it to perform its functions.

''(5) Members of the Board, other than full-time employees of the Federal Government, while attending meetings of the Board or otherwise performing duties of the Board while away from their homes or regular places of business, shall be allowed travel expenses in accordance with subchapter I of chapter 57 of title 5, United States Code.

''(6) The Board shall submit a report of its activities once every year after its establishment to the President,

the Committee on Science, Space, and Technology of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate.

''(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this section such sums as may be necessary for the fiscal years 1994 and 1995.''.

SEC. 213. MISCELLANEOUS AND CONFORMING AMENDMENTS.

(a) DEFINITIONS.—Section 4 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3703) is amended by adding at the end the following new paragraphs:

''(14) 'Director' means the Director of the National Institute of Standards and Technology.

''(15) 'Institute' means the National Institute of Standards and Technology.

''(16) 'Assistant Secretary' means the Assistant Secretary of Commerce for Technology Policy.

''(17) 'Advanced manufacturing technology' includes—

''(A) numerically-controlled machine tools, robots, automated process control equipment, computerized flexible manufacturing systems, associated computer software, and other tech-

nology for improving manufacturing and industrial production which advance the state-of-the-art; and

''(B) novel techniques and processes designed to improve manufacturing quality, productivity, and practices, and to promote sustainable development, including engineering design, quality assurance, concurrent engineering, continuous process production technology, energy efficiency, waste minimization, design for recyclability or parts reuse, inventory management, upgraded worker skills, and communications with customers and suppliers.

''(18) 'Modern technology' means the best available proven technology, techniques, and processes appropriate to enhancing the productivity of manufacturers.''.

(b) REDESIGNATIONS.—The Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.) is amended—

(1) by inserting immediately after section 4 the following new title heading:

"TITLE I—DEPARTMENT OF COMMERCE AND RELATED PROGRAMS";

(2) by redesignating sections 5 through 10 as sections 101 through 106, respectively;

(3) by striking section 21;

(4) by redesignating sections 16 through 20, and 22, as sections 107 through 112, respectively;

(5) by inserting immediately after section 112 (as redesignated by paragraph (4) of this subsection) the following new title heading:

''TITLE II—FEDERAL TECHNOLOGY TRANSFER'';

(6) by redesignating sections 11 through 15 as sections 201 through 205, respectively;

(7) by redesignating section 23 as section 206;

(8) in section 4—

(A) by striking ''section 5'' each place it appears and inserting in lieu thereof ''section 101'';

(B) in paragraphs (4) and (6), by striking ''section 6'' and ''section 8'' each place they appear and inserting in lieu thereof ''section 102'' and ''section 104'', respectively; and

(C) in paragraph (13), by striking ''section 6'' and inserting in lieu thereof ''section 102'';

(9) in section 105 (as redesignated by paragraph (2) of this subsection) by striking ''section 6'' each place it appears and inserting in lieu thereof ''section 102'';

(10) in section 106(d)—(as redesignated by paragraph (2) of this subsection) by striking ''7, 9, 11, 15, 17, or 20'' and inserting in lieu thereof ''103, 105, 108, 111, 201, or 205'';

(11) in section 202(b) (as redesignated by paragraph (6) of this subsection) by striking ''section 14'' and inserting in lieu thereof ''section 204'';

(12) in section 204(a)(1) (as redesignated by paragraph (6) of this subsection) by striking ''section 12'' and inserting in lieu thereof ''section 202'';

(13) in section 112 (as redesignated by paragraph (4) of this subsection) by striking ''sections 11, 12, and 13'' and inserting in lieu thereof ''sections 201, 202, and 203'';

(14) in section 206 (as redesignated by paragraph (7) of this subsection)—

(A) by striking ''section 11(b)'' in subsection (a)(2) and inserting in lieu thereof ''section 201(b)''; and

(B) by striking ''section 6(d)'' in subsection (b) and inserting in lieu thereof ''section 102(d)''; and

(15) by adding at the end of section 201 (as redesignated by paragraph (6) of this subsection) the following new subsection:

''(j) ADDITIONAL TECHNOLOGY TRANSFER MECHANISMS.—In addition to the technology transfer mechanisms set forth in this section and section 202 of this Act, the heads of Federal departments and agencies also may transfer technologies through the technology transfer, extension, and deployment programs of the Department of Commerce and the Department of Defense.''.

SEC. 214. MANUFACTURING TECHNOLOGY CENTERS.

Section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k), is amended—

(1) by amending the section heading to read as follows: ''**MANUFACTURING TECHNOLOGY CENTERS**'';

(2) in subsection (c)(5), by striking ''which are designed'' and all that follows through ''operation of a Center'' and inserting in lieu thereof ''to a maximum of one-third Federal funding. Each Center which receives financial assistance under this section shall be evaluated during its sixth year of operation, and at such subsequent times as the Secretary considers appropriate, by an evaluation panel appointed by the Secretary in the same manner as was the evaluation panel previously appointed. The Secretary shall not provide funding for additional years of the Center's operation unless the evaluation is positive

and the Secretary finds that continuation of funding furthers the goals of the Department. Such additional Federal funding shall not exceed one-third of the cost of the Center's operations'';

(3) by striking subsection (d); and

(4) by adding at the end the following new subsections:

''(d) If a Center receives a positive evaluation during its third year of operation, the Director may, any time after that evaluation, contract with the Center to provide additional technology extension or transfer services above and beyond the baseline activities of the Center. Such additional services may include, but are not necessarily limited to, the development and operation of the following:

''(1) Services focused on the testing, development, and application of manufacturing and process technologies within specific technical fields such as advanced materials or electronics fabrication for the purpose of assisting United States companies, both large and small and both within the Center's original service region and in other regions, to improve manufacturing, product design, workforce training, and production in those specific technical fields.

''(2) Industrial service facilities which provide tools to help companies with the low-cost, low-vol-

ume, rapid prototyping of a range of new products and the refinement of the manufacturing and process technologies necessary to make these products.

''(3) Programs to assist small and medium-sized manufacturers and their employees in the Center's region to learn and apply the technologies, techniques, and processes associated with systems management technology, electric commerce, or improving manufacturing productivity.

''(4) Industry-lead demonstration programs that explore the value of innovative nonprofit manufacturing technology consortia to provide ongoing research, technology transfer, and worker training assistance for industrial members. An award under this paragraph shall be for no more than $500,000 per year, and shall be subject to renewal after a 1-year demonstration period.

SEC. 215. STATE TECHNOLOGY EXTENSION PROGRAM.

(a) Section 26(a) of the National Institute of Standards and Technology Act (15 U.S.C. 2781(a)), is amended—

(1) by inserting immediately after ''(a)'' the following new sentence: ''There is established within the Institute a State Technology Extension Program.''; and

(2) by inserting ''through that Program'' immediately after ''technical assistance''.

(b) Section 26 of the National Institute of Standards and Technology Act (15 U.S.C. 2781) is amended by adding at the end the following new subsection:

''(c) In addition to the general authorities listed in subsection (b) of this section, the State Technology Extension Program also shall, through merit-based competitive review processes and as authorizations and appropriations permit—

''(1) make awards to States and conduct workshops, pursuant to section 5121(b) of the Omnibus Trade and Competitiveness Act of 1988, in order to help States improve their planning and coordination of technology extension activities;

''(2) assist States, particularly States which historically have had no manufacturing or technology extension programs or only small programs, to plan, develop, and coordinate such programs and to help bring those State programs to a level of performance where they can apply successfully for awards to establish Manufacturing Outreach Centers, Regional Centers for the Transfer of Manufacturing Technology, or both;

''(3) support industrial modernization demonstration projects to help States create networks among small manufacturers for the purpose of facilitating technical assistance, group services, and improved productivity and competitiveness;

''(4) support State efforts to develop and test innovative ways to help small and medium-sized manufacturers improve their technical capabilities;

''(5) support State efforts designed to help small manufacturers in rural as well as urban areas improve and modernize their technical capabilities, including, as appropriate, interstate efforts to achieve such end;

''(6) support State efforts to assist interested small defense manufacturing firms to convert their production to nondefense and dual-use purposes;

''(7) support worker technology education programs in the States at institutions such as research universities, community colleges, labor education centers, labor-management committees, and worker organizations in production technologies critical to the Nation's future, with an emphasis on high-performance work systems, the skills necessary to use advanced manufacturing systems well, and best production practice; and

''(8) help States develop programs to train personnel who in turn can provide technical skills to managers and workers of manufacturing firms.''.

SEC. 216. AMERICAN WORKFORCE QUALITY PARTNERSHIPS.

(a) PROGRAM AUTHORIZED.—(1) The Secretary, after consultation with the Secretary of Labor and the Secretary of Education, may make awards to eligible applicants to establish and operate American workforce quality partnerships in accordance with the provisions of this section. The purpose of these partnerships is to provide training to industrial employees, particularly in order to enable them to utilize best current manufacturing technologies and practices, including total quality management techniques.

(2) An American workforce quality partnership shall be a collaboration between—

(A) one or more technology-based or manufacturing sector firms, in conjunction with a labor organization when appropriate or worker representatives or employee representatives; and

(B) a local community or technical college, other appropriate institution of higher education, a vocational training institution, a Regional Center for the Transfer of Manufacturing Technology, a Manu-

facturing Outreach Center, or a consortium of such institutions,

to train the employees of the participating industrial firms through both workplace-based and classroom-based training programs.

(b) AWARDS.—(1) Awards made under this section may be for a period of 5 years. The Federal share of the cost of an American workforce quality partnership may not exceed 50 percent of the total cost of the partnership. The non-Federal share of such costs may be provided in-cash or in-kind, fairly valued.

(2) The Secretary shall make awards under this section on a competitive basis.

(c) USE OF FUNDS.—(1) An American workplace quality partnership may use Federal funds for—

(A) the direct costs of workplace-based and classroom-based training in advanced technical, technological, and industrial management, skills, and training for the implementation of total quality management strategies, or other competitiveness strategies, contained in the plan;

(B) the purchase or lease of equipment or other materials for the purpose of instruction to aid in training;

(C) the development of in-house curricula or coursework or other training-related programs, including the training of teachers and other eligible participants to utilize such curricula or coursework; and

(D) reasonable administrative expenses and other indirect costs of operating the partnership which may not exceed 10 percent of the total cost of the program.

(2) Federal funds may not be used for nontraining related costs of adopting new competitive strategies including the replacement of manufacturing equipment, product redesign and manufacturing facility construction costs, or salary compensation of the partners' employees. Grants shall not be made under this section for programs that will impair any existing program, contract, or agreement without the written concurrence of the parties to such program, contract, or agreement.

(d) ADVISORY BOARDS.—Each partnership receiving assistance under this section shall establish an advisory board, which shall—

(1) include representatives from participating firms, labor organizations or worker representatives, and the education partners; and

(2) advise the partnership on the direction, policies, and activities of the partnership, including training, instruction, and related issues.

SEC. 217. REPORT ON OPTIONS FOR ACCELERATING THE ADOPTION OF NEW MANUFACTURING EQUIPMENT.

Within one year of the date of enactment of this Act, the Secretary shall submit to Congress a report on—

(1) the degree to which both small and large manufacturing enterprises in the United States have difficulty obtaining financing for the purpose of purchasing new equipment and modernizing operations;

(2) the policies and practices followed in other industrialized countries to help manufacturing firms obtain financing for modernization;

(3) the advantages, disadvantages, and costs of major options by which the Federal Government might help stimulate the flow of capital to manufacturers and thus accelerate industrial modernization, including—

(A) creation of a Government-sponsored enterprise to stimulate the flow of capital to manufacturing;

(B) increasing technical advice to banks and other financial institutions, perhaps

through the National Manufacturing Outreach Program, in order to increase their ability to judge whether or not individual manufacturers have sound modernization plans; and

(C) tax incentives.

Subtitle B—National Science Foundation Manufacturing Programs

SEC. 221. NATIONAL SCIENCE FOUNDATION MANUFACTURING ACTIVITIES.

(A) IN GENERAL.—The Director of the National Science Foundation, after, as appropriate, consultation with the Secretary, the Under Secretary, and the Director, shall—

(1) work with the United States industry to identify areas of research in manufacturing technologies and practices that offer the potential to improve United States productivity, competitiveness, and employment;

(2) support research at United States universities to improve manufacturing technologies and practices; and

(3) work with the Technology Administration and the Institute and, as appropriate, other Federal agencies to accelerate the transfer to United States

industry of manufacturing research and innovations developed at universities.

(b) ENGINEERING RESEARCH CENTERS AND INDUSTRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS.—The Director of the National Science Foundation shall strengthen and expand the number of Engineering Research Centers and strengthen and expand the Industry/University Cooperative Research Centers Program with the goals of increasing the engineering talent base versed in technologies critical to the Nation's future, with emphasis on advanced manufacturing, and of advancing fundamental engineering knowledge in these technologies. At least one Engineering Research Center shall have a research and education focus on the concerns of traditional manufacturers, including small and medium-sized firms that are trying to modernize their operations. Awards under this subsection shall be made on a competitive, merit review basis. Such awards may include support for acquisition of instrumentation, equipment, and facilities related to research and education activities of the Centers and support for undergraduate students to participate in the activities of the Centers.

(c) GRADUATE TRAINEESHIPS.—The Director of the National Science Foundation, in consultation with the Secretary, may establish a program to provide traineeships

to graduate students at institutions of higher education within the United States who choose to pursue masters or doctoral degrees in manufacturing engineering.

(d) MANUFACTURING MANAGERS IN THE CLASSROOM PROGRAM.—The Director of the National Science Foundation, in consultation with the Secretary, may establish a program to provide fellowships, on a cost-shared basis, to individuals from industry with experience in manufacturing to serve for 1 or 2 years as instructors in manufacturing at 2-year community and technical colleges in the United States. In selecting fellows, the Director of the National Science Foundation shall place special emphasis on supporting individuals who not only have expertise and practicable experience in manufacturing but who also will work to foster cooperation between 2-year colleges and nearby manufacturing firms.

(e) PROGRAMS TO TEACH TOTAL QUALITY MANAGEMENT.—The Director of the National Science Foundation, in consultation with the Secretary, the Under Secretary, and the Director, may establish a program to develop innovative curricula, courses, and materials for use by institutions of higher education for instruction in total quality management and related management practices, in order to help improve the productivity of United States industry.

TITLE III—CRITICAL TECHNOLOGIES

SEC. 301. FINDINGS.

The Congress finds that—

(1) the rapid, effective use of advanced technologies in the design and production of products is a key determinant of economic competitiveness;

(2) investment in the development and adoption of advanced technology contributes significantly to long-term economic growth and employment;

(3) the governments of our most successful competitor nations in the global marketplace have created supportive structures and programs that have been effective in helping their domestic industries increase their global market shares;

(4) agriculture and aerospace are two examples of industries that have achieved commercial success with strong support from the United States Government; and

(5) the United States Government must promote and facilitate the creation, development, and adoption of advanced technologies to ensure long-term economic prosperity for the United States.

Subtitle A—Advanced Technology Program and Related

SEC. 311. DEVELOPMENT OF PLAN FOR THE ADVANCED TECHNOLOGY PROGRAM.

The Secretary, acting through the Under Secretary and the Director, shall, within 6 months after the date of enactment of this Act, submit to the Congress a plan for the expansion of the Advanced Technology Program established under section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n), with specific consideration given to—

(1) closer coordination and cooperation with the Defense Advanced Research Projects Agency and other Federal research and development agencies as appropriate;

(2) establishment of staff positions that can be filled by industrial or technical experts for a period of one to two years;

(3) broadening of the scope of the program to include as many critical technologies as is appropriate;

(4) changes that may be needed when annual funds available for grants under the Program reach levels of $200,000,000 and $500,000,000; and

(5) administrative steps necessary for Program support of large-scale industry-led consortia similar to, or possibility eventually including, the Semiconductor Manufacturing Technology Institute.

SEC. 312. ADVANCED TECHNOLOGY PROGRAM SUPPORT OF LARGE-SCALE JOINT VENTURES.

Section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n) is amended by adding at the end the following new subsection:

''(k) In addition to the general authority under this section to provide financial assistance to joint ventures, the Secretary, through the Director, also may, as permitted by levels of authorizations and appropriations, provide financial support to large-scale joint ventures requesting $20 million or more a year in Department funds. Any such support shall be subject to the matching funds requirements of in subsection (b)(1)(B)(ii) of this section, except that the Secretary may provide assistance to such large-scale joint ventures for up to 7 years. The Secretary may work with industrial groups to develop such proposed large-scale joint ventures and shall give preference to proposals which represent a broad spectrum of companies for a given industry and which focus on either speeding the commercialization of important new technologies or in accelerating the development, testing, and deployment of val-

uable new process technologies. The Secretary and Director, as appropriate, shall obtain independent technical review of industry proposals submitted under this subsection.''.

SEC. 313. TECHNICAL AMENDMENTS.

Section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n) is amended—

(1) in subsection (b)(1)(B)(ii), by striking ''provision of a minority share of the cost of such joint ventures for up to 5 years'' and inserting in lieu thereof ''the option of provision of either—

''(I) a minority share of the cost of such joint ventures for up to 5 years; or

''(II) only direct costs, and not indirect costs, profits, or management fees, for up to 5 years''; and

(2) by adding at the end the following new subsection:

''(k) Notwithstanding subsections (b)(1)(B)(ii) and (d)(3) the Director may grant an extension of not to exceed 6 months beyond the deadlines established under those subsections for joint venture and single applicant awardees to expend Federal funds to complete their projects, if such extension may be granted with no additional cost to the Federal Government.''.

SEC. 314. TECHNOLOGY MONITORING AND COMPETITIVE ASSESSMENTS.

Section 101(e) of the Stevenson-Wydler Technology Innovation Act of 1980, as redesignated by section 213(b)(2) of this Act, is amended to read as follows:

''(e) OFFICE OF TECHNOLOGY MONITORING AND COMPETITIVE ASSESSMENT.—(1) The Secretary, through the Under Secretary, shall establish within the Technology Administration an Office of Technology Monitoring and Competitive Assessment, to collect, evaluate, assess, and disseminate information on—

''(A) foreign science and technology, specifically information assessing foreign capabilities relative to the United States; and

''(B) policies and programs used by foreign governments and industries to develop and apply economically important critical technologies, how these policies and programs compare with public and private activities in the United States, and the effects that these foreign policies and programs have on the competitiveness of United States industry; and

''(C) the way in which the economic competitiveness of United States industry can be enhanced through Federal programs, including Department of Commerce programs, and evaluations of the effectiveness of Federal technology programs in helping

to promote United States industrial competitiveness and economic growth.

''(2) Based on the information gathered under paragraph (1) of this subsection, the President, with the assistance of the Secretary, shall submit to Congress an annual report on United States technology and competitiveness analyzing the condition of United States technology relative to major trading partners, key trends in foreign technology and competitiveness policies and targeting, and the degree to which Federal programs are helping the United States to stay competitive with other countries.

''(3) The Office of Technology Monitoring and Competitive Assessment is authorized to—

''(A) act as a focal point within the Federal Government for the collection and dissemination, including electronic dissemination, of information on foreign process and product technologies, including information collected under the Japanese Technical Literature Program;

''(B) coordinate the extensive foreign technology monitoring and assessment activities already under way in the Federal Government;

''(C) act as an electronic clearinghouse for this information or otherwise provide for this function;

''(D) direct and fund the collection of additional information;

''(E) direct and fund analysis of foreign research and development activities and technical capabilities, particularly in those technical areas where the United States is considered to be at par or lagging foreign capabilities;

''(F) establish a program to identify technical areas needing a full-scale technical evaluation, and provide grants, on a cost-shared basis, to private sector or government-industry joint ventures, to conduct the evaluation;

''(G) establish and administer a fellowship program to support Technology Fellows in those countries that are major competitors of the United States in critical technologies to collect and provide initial analysis of information on foreign science and technology capabilities; and

''(H) work with the Department of State to place technical experts from the Institute and other Federal laboratories into United States embassies to serve as technology attaches and counsellors.

SEC. 315. COMMERCE TECHNOLOGY ADVISORY BOARD.

Title I of the Stevenson-Wydler Technology Innovation Act of 1980 (as amended by title II of this Act) is

further amended by adding at the end thereof the following new section:

''SEC. 113. COMMERCE TECHNOLOGY ADVISORY BOARD.

''(a) ESTABLISHMENT.—There is established a Commerce Technology Advisory Board (hereafter in this section referred to as the 'Advisory Board'), the purpose of which is to advise the Secretary, Under Secretary, and Director regarding ways in which to—

''(1) promote the development and rapid application of advanced commercial technologies, including advanced manufacturing technologies;

''(2) strengthen the programs of the Technology Administration; and

''(3) generally improve the global competitiveness of industries within the United States.

''(b) COMPOSITION.—The Advisory Board shall be composed of at least 17 members, appointed by the Under Secretary from among individuals who, because of their experience and accomplishments in technology development, business development, or finance are exceptionally qualified to analyze and formulate policy that would improve the global competitiveness of industries in the United States. The Under Secretary shall designate 1 member to serve as chairman. Membership of the Advisory Board shall be composed of—

''(1) representatives of—

''(A) United States small businesses;

''(B) other United States manufacturers;

''(C) research universities and independent research institutes;

''(D) State and local government agencies involved in industrial extension;

''(E) national laboratories;

''(F) industrial, worker, and professional organizations; and

''(G) financial organizations; and

''(2) other individuals that possess important insight to issues of national competitiveness.

''(c) MEETINGS.—(1) The chairman shall call the first meeting of the Advisory Board not later than 90 days after the date of enactment of this Act.

''(2) The Advisory Board shall meet at least once every 6 months, and at the call of the Under Secretary.

''(d) TRAVEL EXPENSES.—Members of the Advisory Board, other than full-time employees of the United States, shall be allowed travel expenses in accordance with subchapter I of chapter 57 of title 5, United States Code, while engaged in the business of the Advisory Board.

''(e) CONSULTATION.—In carrying out this section, the Under Secretary shall consult with other agencies, as appropriate.

''(f) TERMINATION.—Section 14 of the Federal Advisory Committee Act shall not apply to the Advisory Board.''.

SEC. 316. STUDY OF SEMICONDUCTOR LITHOGRAPHY TECHNOLOGIES.

Within 9 months after the date of enactment of this Act, the Critical Technologies Institute established under section 822 of the National Defense Authorization Act for Fiscal Year 1991 (in this section referred to as the ''Institute'') shall, after consultation with the private sector and appropriate officials from other Federal agencies, submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on advanced lithography technologies for the production of semiconductor devices. The report shall include the Institute's evaluation of the likely technical and economic advantages and disadvantages of each such technology, an analysis of current private and Government research to develop each such technology, and any recommendations the Institute may have regarding future Federal support for research and development in advanced lithography.

Subtitle B—Technology Financing Pilot Programs

SEC. 321. FINDINGS AND PURPOSE.

(a) FINDINGS.—Congress finds and declares the following:

(1) In recent years, financing from venture capitalists and banks appears to have become more difficult for technology firms in the United States to obtain.

(2) While tax incentives are often the preferred method to help firms accelerate the development, commercialization, and production of advanced technology products, these incentives are of limited value to those firms, including start-up firms, which have limited revenues but nonetheless provide much of the Nation's innovation and new employment.

(3) Difficulties in obtaining financing particularly hurts those technology firms which face foreign competitors which have received substantial direct or indirect financial help from their governments.

(4) The Nation would benefit from pilot programs which involve Government-industry partnerships to develop and test innovative industry-led methods to increase the amount of financing available to United States technology firms.

(b) PURPOSE.—It is the purpose of Congress in this subtitle to establish, under the Department of Commerce's Technology Administration, three experimental technology financing pilot programs.

SEC. 322. CIVILIAN TECHNOLOGY LOAN PROGRAM.

(a) AUTHORITY TO MAKE LOANS.—The Secretary of Commerce may make loans—

(1) acting through the Under Secretary of Commerce for technology, to small and medium sized businesses eligible for assistance under section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n), to the extent provided in section 504(b) of the Congressional Budget Act of 1974; or

(2) acting through critical technologies development companies licensed under section 323 of this title, to small and medium sized businesses.

(b) PURPOSE.—Loans under this section shall be for growth, modernization, and expansion of small and medium sized businesses engaged in research, development, demonstration, or exploitation of advanced technologies and products, including those in fields such as automation, electronics, advanced materials, biotechnology, and optical technologies.

(c) INTEREST RATE, TERMS, AND CONDITIONS.—Loans under this section shall be made at an interest rate equal to the Government borrowing rate plus an insurance surcharge of up to 2 percent, and shall be subject to such terms and conditions as the Secretary may prescribe.

SEC. 323. ASSISTANCE TO CRITICAL TECHNOLOGY INVESTMENT COMPANIES.

(a) IN GENERAL.—(1) The Secretary, through the Under Secretary, is authorized to provide financial assistance to critical technology investment companies licensed under this section, for the purpose of stimulating and expanding the flow of private capital to qualified joint ventures and qualified individual firms in order to help them finance the development and commercialization of critical civilian technologies.

(2) Each critical technology investment company licensed under this section may provide venture capital to qualified joint ventures and qualified individual firms, in such manner and under such terms as the licensee may fix in accordance with the regulations of the Secretary. Venture capital provided to incorporated qualified joint ventures and individual firms may be provided directly or in cooperation with other investors, incorporated or unincorporated, through agreements to participate on an immediate basis.

(3) Each licensee may make loans, directly or in cooperation with other lenders, incorporated or unincorporated, through agreements to participate on an immediate or deferred basis, to qualified joint ventures and qualified individual firms to provide such ventures and firms with funds needed for sound financing related to development or utilization of critical civilian technologies.

(4) This section shall be carried out in a manner that will ensure the maximum participation of private financial sources and ensure prudent diversification and sound management of operations.

(b) REQUIREMENTS AND AUTHORITIES.—Except as provided in subsections (c) and (d) of this section, the Secretary shall, in providing financial assistance to licensees under the provisions of this section, follow the statutory requirements and use the statutory authorities which apply to the Small Business Administration's Small Business Investment Program, as set forth in subchapter 14B of title 15, United States Code (15 U.S.C. 681 et seq.). Any amendments to subchapter 14B enacted after the date of enactment of this title shall not apply to this section unless explicitly provided for in statute.

(c) ADDITIONAL AUTHORITIES.—In addition to the authorities provided to the Secretary under subsection (b) of this section, the Secretary is authorized to—

(1) purchase nonparticipating preferred securities from licensed critical technology investment companies as one way to provide financial assistance to those companies;

(2) issue trust certificates representing ownership of all or a fractional part of preferred securities issued by licensees and guaranteed by the Secretary under this section, with such trust certificates based on and backed by a trust or pool approved by the Secretary and composed of preferred securities and such other contractual obligations as the Secretary may undertake to facilitate the sale of such trust certificates;

(3) guarantee, upon such terms and conditions as are deemed appropriate, the timely payment of the principal of and interest on trust certificates issued by the Secretary or the Secretary's agent for purposes of this section, provided that such guarantee shall be limited to the extent of the redemption price of and dividends on the preferred securities, plus any related contractual obligations, which compose the trust or pool; and

(4) issue its own rules and regulations concerning how it will carry out this section under the applicable requirements and authorities.

(d) OTHER PROVISIONS.—(1) Amounts received by the Secretary from the payment of dividends and the redemption of preferred securities pursuant to this section, and fees paid to the United States by a licensee pursuant to this section, shall be deposited in an account established by the Secretary and shall be available solely for carrying out this section, to the extent provided in advance in appropriations Acts.

(2) Nothing in this section or in any other provision of law imposes any liability on the United States or the Secretary with respect to any obligations entered into, or stocks issued, or commitments made by any licensee operating under this section.

SEC. 324. ASSISTANCE TO STATE TECHNOLOGY DEVELOPMENT PROGRAMS.

(a) IN GENERAL.—The Secretary, through the Under Secretary, may provide financial, technical, and business assistance to programs run by or chartered by State governments for the purpose of accelerating the development and commercialization of critical civilian technologies, including technologies developed by universities and colleges within the States. Such State technology development programs may—

(1) directly fund critical civilian technology development projects at qualified joint ventures and qualified individual firms; and

(2) when appropriate, assist intermediary organizations, including universities, to develop new critical civilian technologies to the point where qualified joint ventures and qualified individual firms will invest in their further development and commercialization.

(b) FINANCIAL ASSISTANCE.—(1) The Secretary may make awards for up to three years to any State technology development program which meets the eligibility requirements of paragraph (2). State programs which win awards may reapply if they still meet eligibility requirements. Any financial assistance from the Secretary to State technology development programs shall be made only through a competitive, merit-reviewed process.

(2) A State technology development program must meet the following requirements before it shall be eligible to apply for and receive assistance under this section:

(A) at least one-third of the cost of the proposal to which such assistance applies must be provided by such State program; and

(B) the State program must demonstrate that any technology or intellectual property developed

under the program shall be made available only to joint ventures and individual firms which legally commit to manufacture substantially in the United States any products resulting from any project funded in whole or in part by Federal funds provided under this section.

TITLE IV—ADDITIONAL COMMERCE DEPARTMENT PROVISIONS

SEC. 401. INTERNATIONAL STANDARDIZATION.

(a) FINDINGS.—The Congress finds that—

(1) private sector consensus standards are essential to the timely development of competitive products;

(2) Federal Government contribution of resources, more active participation in the voluntary standards process in the United States, and assistance, where appropriate, through government to government negotiations, can increase the quality of United States standards, increase their compatibility with the standards of other countries, and ease access of United States-made products to foreign markets; and

(3) the Federal Government, working in cooperation with private sector organizations including

trade associations, engineering societies, and technical bodies, can effectively promote United States Government use of United States consensus standards and, where appropriate, the adoption and United States Government use of international standards.

(b) STANDARD PILOT PROGRAM.—Section 104(e) of the American Technology Preeminence Act of 1991 is amended—

(1) by inserting ''(1)'' before ''Pursuant to the''; and

(2) by adding at the end the following new paragraph:

''(2) As necessary and appropriate, the Institute shall expand the program established under section 112 of the National Institute of Standards and Technology Authorization Act for Fiscal Year 1989 (15 U.S.C. 272 note) by extending the existing program and by entering into additional contracts with non-Federal organizations representing United States companies, as such term is defined in section 28(d)(9)(B) of the National Institute of Standards and Technology Act (15 U.S.C. 278n(d)(9)(B)). Such contracts shall require cost sharing between Federal and non-Federal sources for such purposes. In awarding such contracts, the Institute shall seek

to promote and support the dissemination of United States technical standards to additional foreign countries, in cooperation with governmental bodies, private organizations including standards setting organizations and industry, and multinational institutions that promote economic development. The organizations receiving such contracts may establish training programs to bring to the United States foreign standards experts for the purpose of receiving in-depth training in the United States standards system.''.

(c) REPORT ON GLOBAL STANDARDS.—The Secretary, in consultation with the Institute and the Commerce Technology Advisory Board established under section 204 of this Act, shall submit to the Congress a report describing the appropriate roles of the Department of Commerce in aid to United States companies in achieving conformity assessment and accreditation and otherwise qualifying their products in foreign markets, and in the development and promulgation of domestic and global product and quality standards, including a discussion of the extent to which each of the policy options provided in such Office of Technology Assessment report contributes to meeting the goals of—

(1) increasing the international adoption of standards beneficial to United States industries; and

(2) improving the coordination of United States representation to international standards setting bodies.

(d) FEDERAL GOVERNMENT ROLE.—Section 508(a) of the American Technology Preeminence Act of 1991 is amended by adding at the end the following new paragraph:

''(6) The appropriate role of the Federal Government in aid to United States companies in achieving conformity assessment and accreditation and otherwise qualifying their products in foreign markets, and in the development and promulgation of domestic and global product and quality standards, including a discussion of the extent to which each of the policy options provided in the Office of Technology Assessment report on global standards contributes to meeting the goal of improving the coordination of United States representation to international standards-setting bodies.

SEC. 402. MALCOLM BALDRIGE AWARD AMENDMENTS.

(a) Section 108(c)(3) of the Stevenson-Wydler Technology Innovation Act of 1980, as so redesignated by section 206(b)(4) of this Act, is amended to read as follows:

''(3) No award shall be made within any category or subcategory if there are no qualifying enterprises in that category or subcategory.''.

(b)(1) Section 108(c)(1) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3711a(c)(1)) is amended by adding at the end the following new subparagraph:

''(D) Educational institutions.''.

(2)(A) Within 1 year after the date of enactment of this Act, the Secretary shall submit to the Congress a report containing—

(i) criteria for qualification for a Malcolm Baldrige National Quality Award by various classes of educational institutions;

(ii) criteria for the evaluation of applications for such awards under section 108(d)(1) of the Stevenson-Wydler Technology Innovation Act of 1980; and

(iii) a plan for funding awards described in clause (i).

(B) In preparing the report required under subparagraph (A), the Secretary shall consult with the National Science Foundation and other public and private entities with appropriate expertise, and shall provide for public notice and comment.

(C) The Secretary shall not accept applications for awards described in subparagraph (A)(i) until after the report required under subparagraph (A) is submitted to the Congress.

SEC. 403. COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS.

Section 202(d)(1) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a(d)(1)), as redesignated by section 206(b)(6) of this Act, is amended by inserting ''(including both real and personal property)'' after ''or other resources'' both places it appears.

SEC. 404. CLEARINGHOUSE ON STATE AND LOCAL INITIATIVES.

Section 102(a) of the Stevenson-Wydler Technology Innovation Act of 1980, as so redesignated by section 206(b)(2) of the Act, as amended by striking ''Office of Productivity, Technology, and Innovation'' and inserting in lieu thereof ''Institute''.

SEC. 405. USE OF DOMESTIC PRODUCTS.

(a) PROHIBITION AGAINST FRAUDULENT USE OF ''MADE IN AMERICA'' LABELS.—(1) A person shall not intentionally affix a label bearing the inscription of ''Made in America'', or any inscription with that meaning, to any product sold in or shipped to the United States, if that product is not a domestic product.

(2) A person who violates paragraph (1) shall not be eligible for any contract for a procurement carried out with amounts authorized under this Act and the amendments made by this Act, including any subcontract under such a contract pursuant to the debarment, suspension, and ineligibility procedures in subpart 9.4 of chapter 1 of title 48, Code of Federal Regulations, or any successor procedures thereto.

(b) COMPLIANCE WITH BUY AMERICAN ACT.—(1) Except as provided in paragraph (2), the head of each agency which conducts procurements shall ensure that such procurements are conducted in compliance with sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a through 10c, popularly known as the ''Buy American Act'').

(2) This subsection shall apply only to procurements made for which—

(A) amounts are authorized by this Act, and the amendments made by this Act, to be made available; and

(B) solicitations for bids are issued after the date of enactment of this Act.

(3) The Secretary, before January 1, 1994, shall report to the Congress on procurements covered under this subsection of products that are not domestic products.

(c) DEFINITIONS.—For the purposes of this section, the term ''domestic product'' means a product—

(1) that is manufactured or produced in the United States; and

(2) at least 50 percent of the cost of the articles, materials, or supplies of which are mined, produced, or manufactured in the United States.

SEC. 406. SEVERABILITY.

If any provision of this Act, or the application thereof to any person or circumstance, is held invalid, the remainder of this Act and the application thereof to other persons or circumstances shall not be affected thereby.

SEC. 407. WIND ENGINEERING RESEARCH PROGRAM.

(a) SHORT TITLE.—This section may be cited as the ''Wind Engineering Program Act of 1992''.

(b) FINDINGS AND PURPOSES.—Congress finds the following:

(1) Hurricanes and tornadoes kill more Americans and destroy more property than any other natural disaster.

(2) Each year, in the United States, extreme winds cause billions of dollars of damage to homes, schools, and other buildings, roads and bridges, electrical power distribution networks, and communications networks.

(3) Research on wind and wind engineering has resulted in improved methods for making buildings and other structures less vulnerable to extreme winds, but additional research funding is needed to develop new, improved, and more cost-effective methods of wind-resistant construction.

(4) Federal funding for wind engineering research has decreased drastically over the last 20 years.

(5) Wind research has been hampered by a lack of data on near-surface wind speed and distribution during hurricanes, tornadoes, and other severe storms.

(6) Many existing methods for wind-resistant construction are inexpensive and easy to implement but often they are not applied because the construction industry and the general public are unaware of such methods.

(7) Various Federal agencies have important roles to play in wind engineering research, but at present there is little interagency cooperation in this area.

(8) Establishment of a Federal Wind Engineering Program would result in new technologies for wind-resistant construction, broader application of

such technologies in construction, and ultimately decreased loss of life and property due to extreme winds.

(c) PURPOSE.—The purpose of this Act is to create a Wind Engineering Program within the National Institute of Standards and Technology, which would—

(1) provide for wind engineering research;

(2) serve as a clearinghouse for information on wind engineering; and

(3) improve interagency coordination on wind engineering research between the National Institute of Standards and Technology, the National Oceanic and Atmospheric Administration, the National Science Foundation, the Federal Aviation Administration, and other appropriate agencies.

(d) ESTABLISHMENT.—Within the National Institute of Standards and Technology, there shall be established a Wind Engineering Program which shall—

(1) conduct research and development, in cooperation with the private sector and academia, on new methods for mitigating wind damage due to tornadoes, hurricanes, and other severe storms;

(2) fund construction and maintenance of wind tunnels and other research facilities needed for wind engineering research;

(3) promote the application of existing methods for, and research results on, reducing wind damage to buildings that are usually incompletely- or non-engineered, such as single family dwellings, mobile homes, light industrial buildings, and small commercial structures;

(4) transfer technology developed in wind engineering research to the private sector so that it may be applied in building codes, design practice, and construction;

(5) conduct, in conjunction with the National Oceanic and Atmospheric Administration, post-disaster research following hurricanes, tornadoes, and other severe storms to evaluate the vulnerability of different types of buildings to extreme winds;

(6) serve as a point of contact for dissemination of research information on wind engineering and work with the private sector to develop education and training programs on construction techniques, developed from research results, for reducing wind damage;

(7) work with the National Oceanic and Atmospheric Administration, the Federal Aviation Administration, and other agencies as is appropriate, on

meteorology programs to collect and disseminate more data on extreme wind events; and

(8) work with the National Science Foundation to support and expand basic research on wind engineering.

TITLE V—AUTHORIZATIONS OF APPROPRIATIONS

SEC. 501. TECHNOLOGY ADMINISTRATION.

(a) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary, to carry out the activities of the Under Secretary and the Assistant Secretary of Commerce for Technology Policy—

(1) for the Office of the Under Secretary, $5,000,000 for fiscal year 1994 and $8,000,000 for fiscal year 1995;

(2) for Technology Policy $5,000,000 for fiscal year 1994 and $6,000,000 for fiscal year 1995;

(3) for Japanese Technical Literature, $2,000,000 for fiscal year 1994 and $3,000,000 for fiscal year 1995; and

(4) for the Office of Technology Monitoring and Competitive Assessment, $1,500,000 for fiscal year 1994 and $2,500,000 for fiscal year 1995.

(b) TRANSFERS.—(1) Funds may be transferred among the line items listed in subsection (a), so long as—

(A) the net funds transferred to or from any line item do not exceed 10 percent of the amount authorized for that line item in such subsection;

(B) the aggregate amount authorized under subsection (a) is not changed; and

(C) the Committee on Commerce, Science and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives are notified in advance of any such transfer.

(2) The Secretary may propose transfers to or from any line item listed in subsection (a) exceeding 10 percent of the amount authorized for such line item, but such proposed transfer may not be made unless—

(A) a full and complete explanation of any such proposed transfer and the reason therefor are transmitted in writing to the Speaker of the House of Representatives, the President of the Senate, and the appropriate authorizing Committees of the House of Representatives and the Senate; and

(B) 30 days have passed following the transmission of such written explanation.

(c) NATIONAL TECHNICAL INFORMATION SERVICE FACILITIES STUDY.—As part of its modernization effort and before signing a new facility lease, the National Tech-

nical Information Service, in consultation with the General Services Administration, shall study and report to Congress on the feasibility of accomplishing all or part of its modernization by signing a long-term lease with an organization that agrees to supply a facility and supply and periodically upgrade modern equipment which permits the National Technical Information Service to receive, store, manipulate, and print electronically created documents and reports and to carry out the other functions assigned to the National Technical Information Service.

SEC. 502. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.

(a) INTRAMURAL SCIENTIFIC AND TECHNICAL RESEARCH AND SERVICES.—(1) There are authorized to be appropriated to the Secretary, to carry out the intramural scientific and technical research and services activities of the Institute, $250,000,000 for fiscal year 1994 and $300,000,000 for fiscal year 1995.

(2) Of the amount authorized under paragraph (1)—

(A) $1,000,000 for fiscal year 1994 and $1,000,000 for fiscal year 1995 are authorized only for the evaluation of nonenergy-related inventions;

(B) $9,000,000 for fiscal year 1994 and $10,000,000 for fiscal year 1995 are authorized only for the technical competence fund; and

(C) $5,000,000 for fiscal year 1994 and $5,000,000 for fiscal year 1995 are authorized only for the standards pilot project established under section 104(e) of the American Technology Pre-eminence Act of 1991.

(b) Facilities.—In addition to the amounts authorized under subsection (a), there are authorized to be appropriated to the Secretary $105,000,000 for each of fiscal years 1993 and 1995, for the renovation and upgrading of the Institute's facilities. The Institute may enter into a contract for the design work for such purposes only if Federal Government payments under the contract are limited to amounts provided in advance in appropriations Acts.

(c) EXTRAMURAL INDUSTRIAL TECHNOLOGY SERVICES.—In addition to the amounts authorized under subsections (a) and (b), there are authorized to be appropriated to the Secretary, to carry out the extramural industrial technology services activities of the Institute—

(1) for the National Manufacturing Outreach Program, $150,000,000 for fiscal year 1994 and $280,000,000 for fiscal year 1995, of which—

(A) $50,000,000 for fiscal year 1994 and $80,000,000 for fiscal year 1995 are authorized

only for the support of Regional Centers for the Transfer of Manufacturing Technology;

(B) $40,000,000 for fiscal year 1994 and $100,000,000 for fiscal year 1995 are authorized only for the support of Manufacturing Outreach Centers;

(C) $40,000,000 for fiscal year 1994 and $70,000,000 for fiscal year 1995 are authorized only for the State Technology Extension Program;

(D) $20,000,000 for fiscal year 1994 and $30,000,000 for fiscal year 1995 are authorized only for the Institute activities in support of the Outreach Program, including support of the Technology Extension Communications Network and the associated Clearinghouse; and

(2) for the Advanced Technology Program, $210,000,000 for fiscal year 1994 and $420,000,000 for fiscal year 1995, of which $30,000,000 for fiscal year 1994 and $50,000,000 for fiscal year 1995 are authorized only for support of the Advanced Manufacturing Technology Development Program established under section 303 of the Stevenson-Wydler Technology Innovation Act of 1980.

(d) WIND ENGINEERING.—(1) There are authorized to be appropriated to the Institute for the purposes of title V of this Act, $1,000,000 for fiscal year 1994 and $3,000,000 for fiscal year 1995.

(2) Of the amounts appropriated under paragraph (1), no less than 50 percent shall be used for cooperative agreements with the National Oceanic and Atmospheric Administration, the National Science Foundation, and Federal Aviation Administration, or other agencies, for wind engineering research, development of improved practices for structures, and the collection and dissemination of meteorological data needed for wind engineering.

SEC. 503. ADDITIONAL ACTIVITIES OF THE TECHNOLOGY ADMINISTRATION.

In addition to the amounts authorized under sections 601 and 602, there are authorized to be appropriated to the Secretary—

(1) for the Civilian Technology Loan Program established under section 322 of this Act, $60,000,000 for the period encompassing fiscal years 1994 and 1995;

(2) for the Civilian Technologies Venture Capital Program established under section 323 of this Act, $105,000,000 for the period encompassing fiscal years 1994 and 1995;

(3) for assistance to State Technology Assistance programs, as provided under section 324 of this Act, $25,000,000 for fiscal year 1994 and $50,000,000 for fiscal year 1995; and

(4) for carrying out the American workforce quality partnership program established under section 216 of this Act $50,000,000 for fiscal year 1994 and $50,000,000 for fiscal year 1995.

Amounts appropriated under paragraph (1) or (2) shall remain available for expenditure through September 30, 1996. Of the amounts made available under paragraph (1) for a fiscal year, not more than $2,000,000 or 10 percent, whichever is greater, shall be available for administrative expenses. Of the amounts made available under paragraph (2) for a fiscal year, not more than $5,000,000 or 10 percent, whichever is greater, shall be available for administrative expenses. The Secretary, through the Under Secretary and the Director, may accept the transfer of funding appropriated to any other agency for purposes similar or related to those of the programs established and carried out under title III of the Stevenson-Wydler Technology Innovation Act of 1980, or the programs established and carried out under sections 25 and 26 of the National Institute of Standards and Technology Act, and to use those

funds to implement such programs as provided in those statutory provisions.

SEC. 504. NATIONAL SCIENCE FOUNDATION.

In addition to such other sums as may be authorized by other Acts to be appropriated to the Director of the National Science Foundation, there are authorized to be appropriated to that Director, to carry out the provisions of section 221 of this Act, $50,000,000 for fiscal year 1994 and $75,000,000 for fiscal year 1995.

SEC. 505. AVAILABILITY OF APPROPRIATIONS.

Appropriations made under the authority provided in this title shall remain available for obligation, for expenditure, or for obligation and expenditure for periods specified in the Acts making such appropriations.

TITLE VI—INFORMATION INFRASTRUCTURE AND TECHNOLOGY

SEC. 601. SHORT TITLE.

This title may be cited as the ''Information Infrastructure and Technology Act of 1992''.

SEC. 602. FINDINGS AND PURPOSE.

(a) FINDINGS.—The Congress finds the following:

(1) High-performance computing and high-speed networks have proven to be powerful tools for

improving America's national security, industrial competitiveness, and research capabilities.

(2) Federal programs, like the High-Performance Computing Program established by Congress in 1991, have played a key role in maintaining United States leadership in high-performance computing, especially in the defense and research sectors.

(3) High-performance computing and high-speed networking have the potential to revolutionize many fields, including education, libraries, health care, and manufacturing, if adequate resources are invested in developing the technology needed to do so.

(4) The Federal Government should ensure that the technology developed under research and development programs like the High-Performance Computing Program can be widely applied for the benefit of all Americans.

(5) A coordinated, interagency program is needed to identify and promote development of applications of high-performance computing and high-speed networking which will provide large economic and social benefits to the Nation. Those so-called ''Grand Applications'' should include tools for teaching, digital libraries of electronic information, computer sys-

tems to improve the delivery of health care, and computer and networking technology to promote United States competitiveness.

(6) The Office of Science and Technology Policy is the appropriate office to coordinate such a program.

(b) PURPOSE.—It is the purpose of this Act to help ensure the widest possible application of high-performance computing and high-speed networking. This requires that the United States Government—

(1) expand Federal support for research and development on applications of high-performance computing and high-speed networks for—

(A) improving education at all levels, from preschool to adult education, by developing new educational technology;

(B) building digital libraries of electronic information accessible over computer networks like the National Research and Education Network;

(C) improving the provision of health care by furnishing health care providers and their patients with better, more accurate, and more timely information; and

(D) increasing the productivity of the Nation's workers, especially in the manufacturing sector; and

(2) improve coordination of Federal efforts to deploy these technologies in cooperation with the private sector as part of an advanced, national information infrastructure.

SEC. 603. INFORMATION INFRASTRUCTURE DEVELOPMENT PROGRAM.

The National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.) is amended by adding at the end the following new title:

''TITLE VII—INFORMATION INFRASTRUCTURE DEVELOPMENT PROGRAM

''SEC. 701. The Director of the Office of Science and Technology Policy, through the Federal Coordinating Council for Science, Engineering, and Technology (hereafter in this title referred to as the 'Council'), shall, in accordance with this title—

''(1) establish an Information Infrastructure Development Program (hereafter in this title referred to as the 'Program') that shall provide for a coordinated interagency effort to develop technologies needed to apply high-performance computing and high-speed networking in education, librar-

ies, health care, manufacturing, and other appropriate fields; and

''(2) develop an Information Infrastructure Development Plan (hereafter in this title referred to as the 'Plan') describing the goals and proposed activities of the Program.

''SEC. 702. (a) The Plan shall contain recommendations for a five-year national effort and shall be submitted to the Congress within one year after the date of enactment of this title. The Plan shall be resubmitted upon revision at least once every two years thereafter.

''(b) The Plan shall—

''(1) establish the goals and priorities for the Program for the fiscal year in which the Plan (or revised Plan) is submitted and the succeeding four fiscal years;

''(2) set forth the role of each Federal agency and department in implementing the Plan;

''(3) describe the levels of Federal funding for each agency and department, and specific activities, required to achieve the goals and priorities established under paragraph (1); and

''(4) assign particular agencies primary responsibility for developing particular Grand Applications

of high-performance computing and high-speed networks.

''(c) Accompanying the Plan shall be—

''(1) a summary of the achievements of Federal efforts during the preceding fiscal year to develop technologies needed for deployment of an advanced information infrastructure;

''(2) an evaluation of the progress made toward achieving the goals and objectives of the Plan;

''(3) a summary of problems encountered in implementing the Plan; and

''(4) any recommendations regarding additional action or legislation which may be required to assist in achieving the purposes of this title.

''(d) The Plan shall address, where appropriate, the relevant programs and activities of the following Federal agencies and departments:

''(1) The National Science Foundation.

''(2) The Department of Commerce, particularly the National Institute of Standards and Technology, the National Oceanic and Atmospheric Administration, and the National Telecommunications and Information Administration.

''(3) The National Aeronautics and Space Administration.

''(4) The Department of Defense, particularly the Defense Advanced Research Projects Agency.

''(5) The Department of Energy.

''(6) The Department of Health and Human Services, particularly the National Institutes of Health and the National Library of Medicine.

''(7) The Department of the Interior, particularly the United States Geological Survey.

''(8) The Department of Education.

''(9) The Department of Agriculture, particularly the National Agricultural Library.

''(10) Such other agencies and departments as the President or the Chairman of the Council considers appropriate.

''(e) In addition, the Plan shall take into consideration the present and planned activities of the Library of Congress, as deemed appropriate by the Library of Congress.

''(f) The Council shall—

''(1) serve as lead entity responsible for development of the Plan and interagency coordination of the Program;

''(2) coordinate the high-performance computing research and development activities of Federal agencies and departments undertaken pursuant to

the Plan and report at least annually to the President, through the Chairman of the Council, on any recommended changes in agency or departmental roles that are needed to better implement the Plan;

''(3) review, prior to the President's submission to the Congress of the annual budget estimate, each agency and departmental budget estimate in the context of the Plan and make the results of that review available to the appropriate elements of the Executive Office of the President, particularly the Office of Management and Budget; and

''(4) consult and ensure communication between Federal agencies and research, educational, and industry groups and State agencies conducting research and development on and using high-performance computing.

''(g) The Director of the Office of Science and Technology Policy shall establish an advisory committee on high-performance computing and high-speed networking and their applications, consisting of prominent representatives from industry and academia who are specially qualified to provide the Council with advice and information on uses of high-performance computing and high-speed networking. The advisory committee shall provide the Council with an independent assessment of—

''(1) progress made in implementing the Plan;

''(2) the need to revise the Plan;

''(3) the balance between the components of the Plan;

''(4) whether the research and development funded under the Plan is helping to maintain United States leadership in the application of computing technology;

''(5) ways to ensure government-industry cooperation in implementing the Plan; and

''(6) other issues identified by the Director.

''(h)(1) Each Federal agency and department involved in the program shall, as part of its annual request for appropriations to the Office of Management and Budget, submit a report to that Office identifying each element of its high-performance computing activities, which—

''(A) specifies whether each such element (i) contributes primarily to the implementation of the Plan or (ii) contributes primarily to the achievement of other objectives but aids Plan implementation in important ways; and

''(B) states the portion of its request for appropriations that is allocated to each element.

''(2) The Office of Management and Budget shall review each such report in light of the goals, priorities, and

agency and departmental responsibilities set forth in the Plan, and shall include, in the President's annual budget estimate, a statement of the portion of each appropriate agency or department's annual budget estimate that is allocated to efforts to develop applications of high-performance computing.

''SEC. 703. In this title, the following definitions apply:

''(1) The term 'Grand Application' means an application of high-performance computing and highspeed networking that will provide large economic and social benefits to a broad segment of the Nation's populace.

''(2) The term 'information infrastructure' means a network of communications systems and computer systems designed to exchange information among all citizens and residents of the United States.''.

SEC. 604. APPLICATIONS FOR EDUCATION

(a) RESPONSIBILITIES OF NATIONAL SCIENCE FOUNDATION AND OTHER AGENCIES.—In accordance with the Plan developed under section 701 of the National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of this Act, the National Science Foundation and

other appropriate agencies shall provide for the development of high-performance computing and high-speed networking technology for use in education at all levels. Such applications shall include but not be limited to the following:

(1) Pilot projects that connect primary and secondary schools to the Internet and the National Research and Education Network to aid in development of the software, hardware, and training material needed to enable students and teachers to use networks to—

(A) communicate with their peers around the country;

(B) communicate with educators and students in colleges and universities;

(C) access databases of electronic information; and

(D) access other computing resources.

(2) Development of computer software, computer systems, and networks for teacher training.

(3) Development of advanced educational software.

(b) COOPERATION.—In carrying out this section, the National Science Foundation shall work with the computer and communications industry, authors and publish-

ers of educational materials, State education departments, local school districts, and the Department of Education, as appropriate.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation for the purposes of this section, $20,000,000 for fiscal year 1993, $40,000,000 for fiscal year 1994, and $60,000,000 for fiscal year 1995.

SEC. 605. APPLICATIONS FOR MANUFACTURING

(a) ADVANCED MANUFACTURING SYSTEMS AND NETWORKING PROJECTS.—In accordance with the Plan developed under section 701 of the National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of this Act, the National Institute of Standards and Technology (hereafter in this section referred to as the ''Institute'') shall, as provided under section 303 of the Stevenson-Wydler Technology Innovation Act (as amended by title II of this Act) shall establish an Advanced Manufacturing Program, including advanced manufacturing systems and networking projects. Activities under the Advanced Manufacturing Program shall, as appropriate, be coordinated with activities of the Defense Advanced Research Projects Agency, the National Science Foundation, other Federal agencies, and the States to develop, refine,

test, and transfer advanced computer-integrated electronically-networked manufacturing technologies and associated applications.

(b) SUPPORT FROM OTHER FEDERAL DEPARTMENTS AND AGENCIES.—The Director of the Institute may request and accept funds, facilities, equipment, or personnel from other Federal departments and agencies in order to carry out responsibilities under this section.

SEC. 606. APPLICATIONS FOR HEALTH CARE.

(a) DEVELOPMENT OF TECHNOLOGIES BY NATIONAL INSTITUTES OF HEALTH.—In accordance with the Plan developed under section 701 of the National Science and Technology Policy, Organization and Priorities Act of 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of this Act, the National Institutes of Health, and particularly the National Library of Medicine, in cooperation with the National Science Foundation and other appropriate agencies, shall develop technologies for applications of high-performance computing and high-speed networking in the health care sector. Such applications shall include but not be limited to the following;

(1) Testbed networks for linking hospitals, clinics, doctor's offices, medical schools, medical libraries, and universities to enable health care providers and researchers to share medical data and imagery.

(2) Software and visualization technology for visualizing the human anatomy and analyzing imagery from X-rays, CAT scans, PET scans, and other diagnostic tools.

(3) Virtual reality technology for simulating operations and other medical procedures.

(4) Collaborative technology to allow several health care providers in remote locations to provide real-time treatment to patients.

(5) Database technology to provide health care providers with access to relevant medical information and literature.

(6) Database technology for storing, accessing, and transmitting patients' medical records while protecting the accuracy and privacy of those records.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Library of Medicine for the purposes of this section, $20,000,000 for fiscal year 1993, $40,000,000 for fiscal year 1994, and $60,000,000 for fiscal year 1995.

SEC. 607. APPLICATIONS FOR LIBRARIES.

(a) DIGITAL LIBRARIES.—In accordance with the Plan developed under section 701 of the National Science and Technology Policy, Organization and Priorities Act of 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of

this Act, the National Science Foundation, the National Aeronautics and Space Administration, the Defense Advanced Research Projects Agency, and other appropriate agencies shall develop technologies for ''digital libraries'' of electronic information. Development of digital libraries shall include the following:

(1) Development of advanced data storage systems capable of storing hundreds of trillions of bits of data and giving thousands of users nearly instantaneous access to that information.

(2) Development of high-speed, highly accurate systems for converting printed text, page images, graphics, and photographic images into electronic form.

(3) Development of database software capable of quickly searching, filtering, and summarizing large volumes of text, imagery, data, and sound.

(4) Encouragement of development and adoption of standards for electronic data.

(5) Development of computer technology to categorize and organize electronic information in a variety of formats.

(6) Training of database users and librarians in the use of and development of electronic databases.

(7) Development of technology for simplifying the utilization of networked databases distributed around the Nation and around the world.

(8) Development of visualization technology for quickly browsing large volumes of imagery.

(b) Development of Prototypes.—The National Science Foundation, working with the supercomputer centers it supports, shall develop prototype digital libraries of scientific data available over the Internet and the National Research and Education Network.

(c) DEVELOPMENT OF DATABASES OF REMOTE-SENSING IMAGES.—The National Aeronautics and Space Administration shall develop databases of software and remote-sensing images to be made available over computer networks like the Internet.

(d) AUTHORIZATION OF APPROPRIATIONS.—(1) There are authorized to be appropriated to the National Science Foundation for the purposes of this section, $10,000,000 for fiscal year 1993, $20,000,000 for fiscal year 1994, $30,000,000 for fiscal year 1995, $40,000,000 for fiscal year 1996, and $50,000,000 for fiscal year 1997.

(2) There are authorized to be appropriated to the National Aeronautics and Space Administration for the purposes of this section, $10,000,000 for fiscal year 1993,

$20,000,000 for fiscal year 1994, and $30,000,000 for fiscal year 1995.

SEC. 608. ACCESS TO SCIENTIFIC AND TECHNICAL INFORMATION.

(a) ASSOCIATE DIRECTORS.—Section 203 of the National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6612) is amended—

(1) by striking ''four'' in the second sentence and inserting in lieu thereof ''five''; and

(2) by adding at the end the following new sentence: ''Among other duties, one Associate Director shall oversee Federal efforts to disseminate scientific and technical information.''.

(b) FUNCTIONS OF DIRECTOR.—Section 204(b) of the National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6613 (b)) is amended—

(1) by striking ''and'' at the end of paragraph (3);

(2) by striking the period at the end of paragraph (4) and inserting in lieu thereof ''; and''; and

(3) by inserting immediately after paragraph (4) the following new paragraph:

(5) assist the President in disseminating scientific and technical information.''.

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